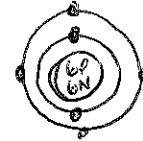


1. What role do functional groups play in the molecules in which they are found?

Functional groups influence the characteristics of the molecule they compose and the chemical reactions that molecule undergoes.

2. What is special about Carbon's structure allow for many different organic molecules? (Draw carbon and show how many bonds it can form to help you answer this!)

Carbon can form 4 bonds with other elements including itself. It can bond using single, double or triple bonds in chains or rings.



3. What is the importance of ATP in the body? provide energy

Term + Examples	Definition/Function	Relationship	Definition/Function	Term + Examples
Condensation reaction Ex. monosaccharides join to form polysaccharides	monomers link to form polymers and H_2O is released.	chemical reactions where H_2O is used or created.	water is used to break down a polymer.	Hydrolysis Reaction sucrose breaks down to form fructose + glucose
Organic Carbohydrate	compound that primarily contain carbon	classifications of compounds	Compounds that do not contain Carbon	Inorganic Mineral
Carbohydrate glucose.	organic compounds composed of C, H, O in a ratio of 1C:2H:1O / Energy source	2 types of organic compounds containing C, H, O	large non polar organic molecules / food storage	Lipid triglyceride
Protein hair, horns.	organic compounds composed mainly of carbon, H, O, N / structure	2 types of large organic molecules containing C, H, O, + N.	large, complex organic molecules that store and transfer genetic information.	Nucleic Acid DNA, RNA

4. Which is organic: vitamins or minerals? vitamin Why do we need them in our diets?

Vitamins: growth, health of skin, eyes, functions of muscles. Minerals: Blood +

5. Arrange the following in order of size, from smallest to largest: other body tissues, Blood cells

a. polymer, monomer, carbon atom, macromolecule.

Carbon atom \rightarrow monomer \rightarrow polymer \rightarrow macromolecule.

6. Describe the 4 common Macromolecules in the chart below.

Macromolecule	Monomer(s)	Elements
Carbohydrates	monosaccharide	C, H, O
Lipids	Fatty acids, alcohols	C, H, O
Proteins	Amino acids	C, H, O, N
Nucleic Acids	nucleotides	C, H, O, N, P

Which macromolecule is being described?

- nucleic acid Hereditary information and making proteins
- Carbs. Quick energy, structure, food storage
- Proteins Chemical reactions, defense, transport, structure
- Lipid Long term energy storage, insulation

7. What word **ending** will clue you in that a molecule is a carbohydrate? -ose

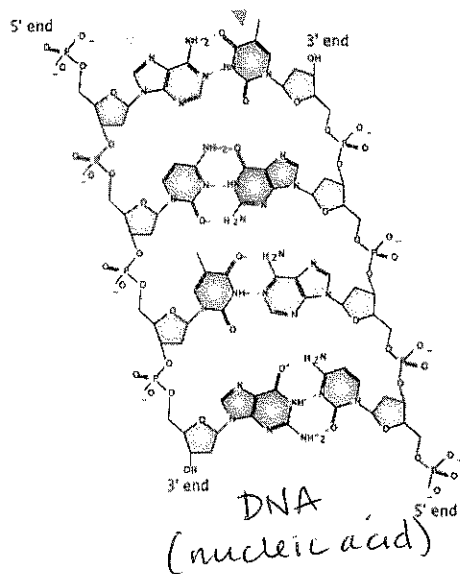
- a. What is the difference between monosaccharides and disaccharides?

Monosaccharides are monomers that combine to make the polymer disaccharide (2 monosaccharides bonded together)

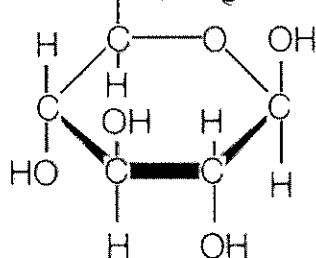
8. How do you tell the difference between a carbohydrate and lipid since they are composed of the same elements?
 A carbohydrate has a ratio of 1 Carbon: 2 hydrogens: 1 Oxygen.
 Lipids have a higher ratio of C:H:O than carbohydrates and are non polar and do not dissolve in H₂O.
9. ***Be able to read the results of a food test to determine what macromolecules it contains***
 See indicator lab summary chart.

ORGANIC MOLECULE PRACTICE (What am I?)

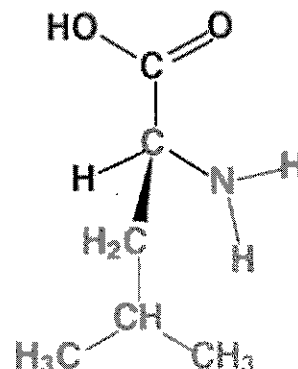
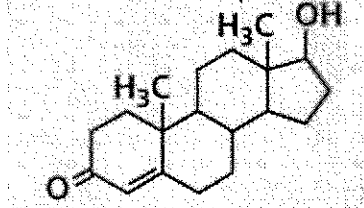
1. Identify the following molecules into the correct macromolecule classification (Carb, Lipid, Protein, Nucleic Acid). Be as specific as possible!



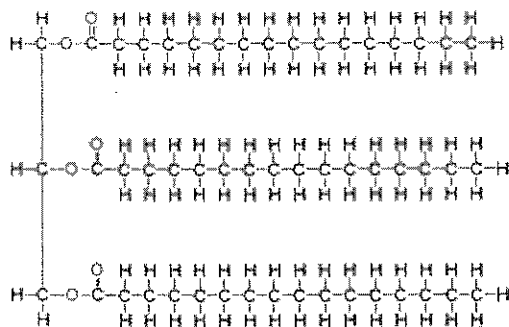
monosaccharide
(carbs)



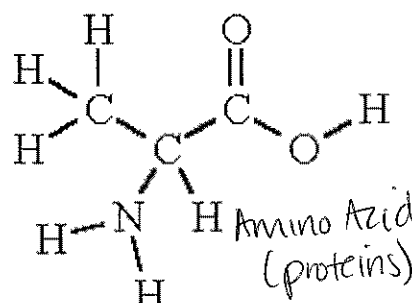
steroid (lipid)



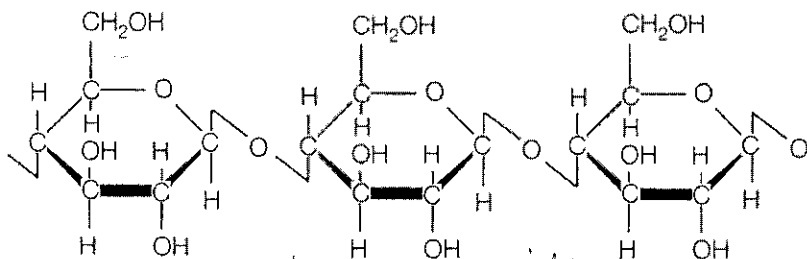
Amino acid
(proteins)



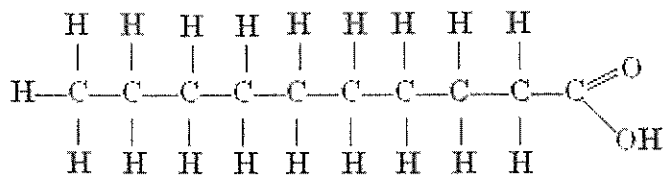
triglyceride (carbs)



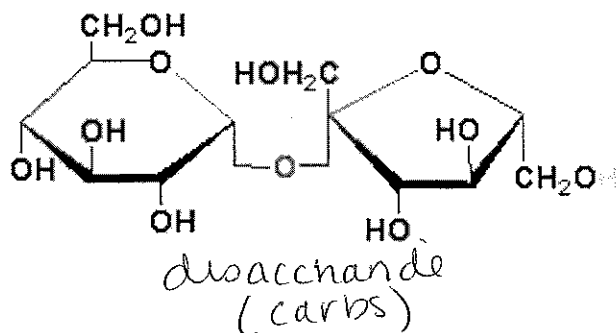
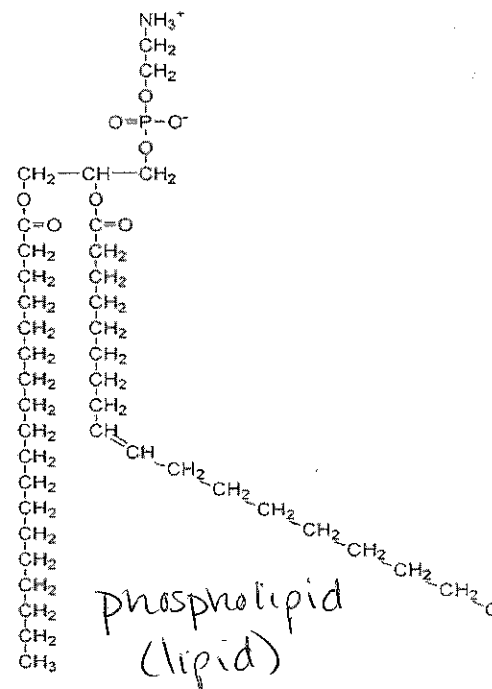
Amino Acid
(proteins)



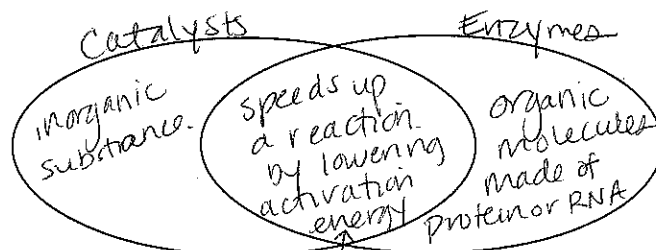
Polysaccharide
(carbs)



fatty acid (lipids)

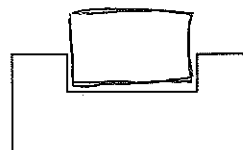


10. Compare and Contrast Catalysts and Enzymes.



11. What would be a substrate that would react with this enzyme?

The shapes must fit perfectly in order for the reaction to occur.



12. Using the lock & key example (OR your own ^{specific} example) explain how an enzymes/substrate reaction works.

The enzyme binds to the ^{specific} substrate to form a complex. New products are then formed and released. The enzyme remains unchanged and is able to be used again.

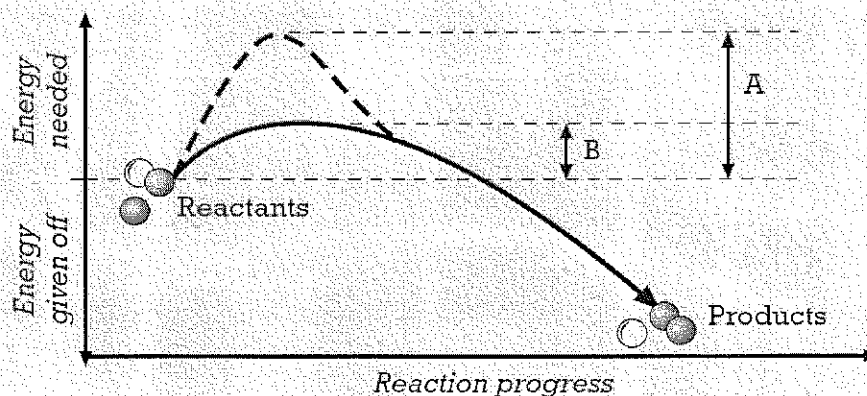
13. What are 2 environmental factors that affect enzyme function? pH and temp.

- a. What do these factors do to the enzyme that interfere with its ability to react? denature it
(change shape)
- b. What can result if an enzyme is damaged or missing?

The reaction may stop preventing any products from forming. EX. no insulin being made, toxins building up in the body.

14. Use the figure to answer the following questions.

The graph below represents the energy changes that occur as a chemical reaction progresses.



1. What is represented by arrow A? Activation Energy required without a catalyst
2. What is represented by arrow B? Activation energy required with a catalyst.
3. Is energy absorbed or released in this reaction? Explain your answer. energy is released because the products have less energy than the reactants.